

Testing the Waters of the Presumpscot with King Middle School

Submitted by Ben Lubbers

For two weeks this past May, students from King Middle School in Portland took part in a "Learning Expedition"¹ that got them out of the classroom and into the field, where they learned first hand what it was like to conduct real field science. I was lucky enough to take part in this expedition, which included, canoeing, wildlife observation, water quality testing, note taking, and lots more.

The expedition was put together by science teacher Scott Comstock, whom with the help of others, organized the King Middle School River Works Project. According to Comstock, the goal of the project was to conduct a science-related and community-oriented project in the students' own backyard. Students would use this project as a way to integrate Environmental Studies with Language Arts, Math, Science, Social Studies, and the application of technology.

In order to involve the community, Comstock formed partnerships with nine local and state organizations. The organizations were the Portland Water District, Portland Trails, Presumpscot River Watch, Friends of the Presumpscot River, Department of

Environmental Protection, Portland Partnership, Maine Audubon, Ripple Effect, and IDEXX company.

Using this integrated approach allowed students, teachers, and community members to work together as a team. During the culmination event, at the King Middle School Library, teacher Luisa Martinez said she had never seen so many organizations involved with one learning experience. *(continued on page 2)*



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¹ See www.elob.org — this is the teaching model used by King Middle School.

King Middle School (cont'd)



The expedition began at the confluence of Mill Brook and the Presumpscot River, and students used canoes to paddle down the Presumpscot to another tributary named Minnow Brook. Comstock had chosen Minnow Brook as a sample site after collaborating with President of the Presumpscot River Watch (PRW), Fred Dillon.

According to Dillon, Minnow Brook had not been a traditional sampling site for the group. Therefore, the student data would potentially complement PRW's water quality monitoring program, which has been taking samples on the river and its tributaries since 1989.

After some preliminary discussions, Dillon and Comstock eventually met to discuss possible testing parameters. Dillon suggested testing for bacterial contamination (*E. coli*) and dissolved oxygen (DO) since these parameters have been the mainstays of PRW's water quality monitoring program, and can be directly compared to the Department of Environmental Protection's water quality classification standards. The two worked together to develop a sampling program that could be readily adopted by middle school students.

They decided that *E. coli* testing would best be accomplished using IDEXX's Colilert method while DO would be done using the LaMotte field kits. The students became familiar with the kits in the classroom, and were well prepared for the field.

I got to watch the students in action during one of their sampling days. Soon after we tied up our canoes the students were organizing the water quality sampling equipment. They set up "base camp" and split up into three groups. Two groups tested Minnow Brook and the other tested the Presumpscot River. Equipped with data sheets, thermometers, Whirl Paks (small, plastic sample bags), and various other sampling equipment, the students made short work of what they had set out to do. All the while, technology teacher David Grant was working with students to capture the whole experience on digital video.

After they had collected and secured the samples in the canoes, the group took 10 minutes to write in their naturalist journals, which was part of their Language Arts assignment. These young Darwins now had a chance to reflect on their experience in the field, and would later get a chance to present their findings at a River Works Culminating Event.

At the Event, students as well as partners spoke about their experiences on the river. A series of videos, essays, and power point presentations wowed the crowd. Finally the data was presented to Presumpscot River Watch Executive Director Forrest Bell, who thanked the students for their hard work. Bell addressed the students not as tomorrow's leaders but as today's leaders.



Critter Corner: Blacknose Dace



The Blacknose Dace (*Rhinichthys atratulus*), which only reaches about 2-3 inches in length, is a very common minnow species found throughout Maine. It ranges from Manitoba to Nebraska, east to the Maritime Provinces of Canada, and south to Alabama and Georgia on both sides of the Appalachian mountains. It prefers moderate- to high-gradient, fast flowing streams with clean substrates composed of sand, gravel, and cobble. Blacknose dace are rarely found in lakes and large river systems, but do migrate to larger, deep-water streams in the winter time.

These fish can be distinguished from other minnows by the numerous speckles on their dark upper bodies. The lower part of the body is cream or orange-colored with few speckles. A dark line runs from the nose to the tail and during breeding, males develop a green tint and red fins. They also have a forked tail fin, an interior mouth with long overhanging snout, and stocky body. During the breeding season, males may have tubercles (small bumps) on their head. This species is more tolerant to increased water turbidities than other species of dace, but disappears if pool substrates become too silted. Also temperatures above 29.3 °C are lethal to this species.

In the summertime, blacknose dace utilize tree roots, brush, overhanging vegetation, and shady areas for cover. They live predominantly in deep pools, but require riffles with gravel substrates for both food and spawning. Their diet consists of small macroinvertebrates, terrestrial insects, and plants.

Relatively short-lived, blacknose dace mature at age two and rarely live past age four. Between May and July when water temperatures are between 15.6 °C and 22 °C dace begin to spawn. Males participate in a mating ritual to attract females and then are responsible for caring for the eggs. When the fry hatch from their eggs, they are usually found feeding in quiet shallow water with silt bottoms. As the fish become adults, they begin to feed in faster moving riffles and deep pools.

References / Credits

Jenkins, R.E and N.M. Burkhead. 1993. Freshwater Fishes of Virginia. American Fisheries Society, Bethesda, Maryland.

Trial, J.G., J. G. Stanley, M. Batcheller, G. Gebhart, O.E. Maughan, and P.C. Nelson. 1983. Habitat Suitability Information: Blacknose Dace. U. S. Dept. Int., Fish Wildl. Serv. FWS/OBS-82/10.41. 28 pp.

Top image: < www.dnr.cornell.edu/ext/fish/nyfish/Cyprinidae/blacknosedace.html >

Bottom image: < www.dnr.state.oh.us/dnap/rivfish/bndace.html >



Calendar Items

*Do you have calendar items for us? Please contact us by **January 1, 2005**.*

The Soundings Institute: Advancing Community-Based Practices in Marine Conservation and Management. September 12-16, 2004. Tatamagouche, Nova Scotia, Canada. The Soundings Institute will bring up to 60 experienced practitioners from throughout North America's Atlantic Region (Newfoundland to Massachusetts) together to present and discuss their work in the community-based marine conservation and management realm. The Institute's goal is to demonstrate and document the breadth and depth of community-based approaches and their impact across a broad spectrum of marine issues and areas. The highly interactive format, which will include plenary sessions, theme-based working groups, and field trips; will maximize potential to assimilate insights, lessons and results from successful and problematic applications of the community-based approach. For more information, contact Michele Walsh, (207) 832-8286 or email < mwalsh@glf.org >.

Conference: Self-Sustaining Solutions for Streams, Wetlands, and Watersheds. September 12-15, 2004. Radisson Riverfront Hotel St. Paul, Minnesota. FMI visit < www.asae.org/meetings/streams2004/index.html >.

Presumpscot River Watershed Paddle Festival. September 18, 2004. For more information, contact Ben Lubbers at Maine DEP, (207) 822-6356 or email < benjamin.j.lubbers@maine.gov >, or check out the information soon to be posted on the Maine Stream Team Program website. Visit < www.state.me.us/dep/blwq/docstream/team/streamteam.htm > and click on "News & Calendar".

Fundraising Canoe Trip on the West Branch of the Penobscot River. September 23 – 26, 2004. Support the development of the Northern Forest Canoe Trail (NFCT). This trip is an excellent opportunity to hone or develop paddling skills, as well as regional knowledge. Weather permitting, one of NFCT's board members will take interested participants on a flyover of the region in his small plane, departing from and returning to one of their campsites along the way. Most gear (boats, paddles, tents, etc.) will be provided, so participants need only bring personal gear. Pre- and post-trip lodging will be provided at The Birches Resort on Moosehead Lake on Wednesday the 22nd and Sunday the 26th for those who need it < www.birches.com >. Cost is \$750, which covers the costs of the trip as well as a tax deductible donation to the NFCT. Interested? Contact Kate Williams at 802-496-2285.

Sheepscot River Symposium. October 6, 2004, 8 am - 5 pm. Sponsored by the Sheepscot Valley Conservation Association. Funded in part by the State Planning Office Maine Coastal Program. This event will be held at the Chewonki Foundation Center for Environmental Education in Wiscasset. The purpose of the Symposium is to gather information on the state of the Sheepscot River watershed and to discuss the factors limiting salmonid production. Each presenter will discuss the trends, information gaps, biggest threats, hypothesis about limiting factors and suggestions for future actions. There is no cost for the Symposium. RSVP to svca@sheepscot.org or call Kristin at the office at (207) 586-5616.

Androscoggin River Watershed Institute. October 9 & 16, 2004. ME & NH. Sponsored by the Androscoggin River Watershed Council. October 9 (Bethel, ME region): Speakers include Colleen Ryan (Maine's Beginning with Habitat, Program Coordinator); Forrest Bonney (Maine Dept. Inland Fisheries & Wildlife, Fisheries Biologist); Jeff Stern (Soil and Water Scientist, leading tour of Sunday River erosion control projects); Amy Scott (Northern Forest Center project specialist, discussing Maine's northern forest region issues); Marcel Polak (land conservationist, discussing methods for protecting land and specific conservation projects now underway in Maine's western mountains); and Jeff Varricchione (Maine Dept. Environmental Protection, discussing macroinvertebrates and their role in river/stream ecology). The day will include a number of field trips including some short hikes and 2-hour canoe trip down the Androscoggin River from Gilead to West Bethel. October 16 (Gorham & Errol, NH and Upton, ME regions): Speakers include Sylvia Bates (land protection expert); Mark Prout (White Mountain National Forest fisheries biologist, discussing and leading a tour of a stream restoration project); and Bruce Clendenning (AMC northern forest advocate, discussing regional land use issues). These talks will be followed by a guided pontoon boat excursion into the Lake Umbagog National Wildlife Refuge with two wildlife biologists, Bill Hanson, of FPL Energy and Lucas Savoy of the ...

Calendar (cont'd)

Androscoggin River Watershed Institute (*cont'd from previous page*). ... Biodiversity Research Institute. The cost for each day's workshop is \$60 per person, which includes a box lunch. The registration deadline is Sept. 28th. Checks should be mailed to: ARWC, P.O. Box 1541, Bethel, Maine 04217. Details and a brochure will be available on their website soon < www.androscogginriver.org >. For more info call Chuck Knox at 603-466-3433 or email < cknoxarwc@aol.com >.

Northern Maine Children's Water Festival. October 12, 2004. University of Maine, Orono, Maine. Hands-on water related activities for 5th and 6th grade students. The dateline has passed for schools to apply to attend, but organizers are still seeking volunteers of all kinds — from presenters to exhibitors and general help. Contact Barb Welch, (207) 287-7682 or email < barb.welch@maine.gov >.

World Water Monitoring Day. October 18, 2004. Visit < www.worldwatermonitoringday.org > for info.

Gulf of Maine Summit. October 26-29, 2004. St. Andrews, New Brunswick, Canada. The goal of this meeting is to assess the health of the Gulf of Maine ecosystem and resources from the bottom up, taking full advantage of and integrating all the initiatives (e.g., watershed monitoring, research, coordinated regional planning, habitat restoration, etc.) currently underway by many agencies, organizations and institutions in the Gulf. For more information, visit their website at < www.gulfofmainesummit.org >.

Maine Rivers Conference. Fall / Winter 2004. Date and location TBA. For more information, check their website < www.mainerivers.org >.



Announcements



- ♦ **Maine Chapter- Izaak Walton League of America** — There is now a Maine Chapter of the Izaak Walton League with an office in Livermore Falls. The Izaak Walton League of America is a national conservation organization whose mission is to protect and restore natural resources and promote public education. The Save Our Streams Program is one of IWLA's initiatives. For more information visit their website: < www.iwlamaine.org > or contact Debi Davidson at (207) 897-6295.
- ♦ **Protecting Water Resources with Smart Growth** — The latest of a series of publications on smart growth has been released by EPA. "Protecting Water Resources with Smart Growth" includes 75 approaches for protecting water resources at the regional or site level. To receive a free copy of the publication, send an email to ncepimal@one.net or call 1-800-490-9198 and request EPA publication 231-R-04-002. The report and further information are also available at < www.epa.gov/smartgrowth >.
- ♦ **USGS Reports on Water Quality** — The United States Geological Survey (USGS) is currently releasing reports on the results of stream and groundwater quality monitoring of 15 major river basins as part of its National Water Quality Assessment Program. The program includes a study of the New England Coastal Basin — an area that includes Western Maine, Eastern New Hampshire and Massachusetts and most of Rhode Island. A separate report "Water Quality in the Nation's Streams and Aquifers- - Overview of Selected Findings, 1999-2001" is also available. One of the major findings of the study was that researchers found negative changes in the water quality of streams at lower than expected watershed development levels. The reports are available on the NAWQA website: <http://water.usgs.gov/nawqa/>.
- ♦ **Stream Macroinvertebrates Packet & Online Movie** — Sponsored by EPA and Missouri Department of Natural Resources, this packet includes lesson plan and resources for teaching about stream invertebrates and water quality. It also includes a very creative downloadable movie created about these critters by middle school students. The packet is available at < www.watersheds.org/teacher/stream.htm >.







Announcements

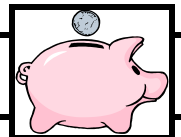
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- ♦ **Best Management Practices for Forestry: Protecting Maine's Water Quality (new manual now available)** - Visit < www.state.me.us/doc/mfs/pubs/bmp_manual.htm > to download the manual for free. To obtain hardcopies, at \$3 per copy, mail a check payable to "Treasurer, State of Maine" to: Maine Forest Service, #22 SHS, Augusta, ME 04333. Be sure to state the number of forestry/water quality BMP manuals you would like. Attending a workshop by MFS on these forestry topics is encouraged. For more info, call (207) 287-2791 or visit the website mentioned above. 
- ♦ **EPA Watershed Patch Project** — "This project is modeled after the successful Water Drop Project, a collaborative effort between EPA and the Girl Scouts of the USA (GSUSA). GSUSA developed its own patch for Girl Scouts who complete the requisite number of activities. Because of the popularity of that project, EPA has developed this generic version for schools, science clubs, and others interested in watershed protection". Visit the website to learn more about the program and activities schools can do. The website also includes background education and resource materials < www.epa.gov/adopt/patch/watershedpatch >.
- ♦ **The National Environmental Education and Training Foundation** — The foundation offers a free website with information on how educators can obtain the best and most usable environmental education programs available today. The website provides up-to-date information on the most successful, well-tested and effective national environmental education programs available. For more information, visit the website < www.ClassroomEarth.org >.
- ♦ **Royal River Youth Conservation Corp** — The Friends of the Royal River (FORR) sponsored its first Youth Conservation Corp (YCC) this summer. A YCC employs high school or college students to provide assistance to landowners and the physical labor for fixing erosion or runoff control problems in a watershed (e.g., planting vegetative buffers, stabilizing shoreline erosion, etc.). They also get involved in other types of projects. For instance, they spent 2 days stenciling storm drains in Yarmouth in order to educate the public about the potential impact of stormwater pollution on the Royal River. The corp is supported by funds from the Maine DEP for the next two summers. It also received support this year from the Cumberland County Soil & Water Conservation District, U.S. EPA-Casco Bay Estuary Program, Sabbathday Lake Association and Town of New Gloucester. For more information, contact Henry Nichols (Executive Director of FORR) at (207) 847-9399 or Betty Williams (CCSWCD) at (207) 856-2777. 
- ♦ **Avian Health Surveillance Project** — With assistance of Maine Audubon and other partners, faculty at the University of Maine is conducting a study to identify causes of injury and mortality in wild birds. Birds can be sensitive indicators of the environment, and systematic monitoring of avian mortality and injury can give us information about man-made and disease hazards facing wildlife populations. Using a volunteer collection system, we are collecting found-dead birds and evaluating them for selected pesticide and disease agents. We encourage anyone who has found a dead bird and may be willing to transport it to a nearby collection site, to call (207) 688-4977 for further information. Directions to dead bird collection sites can be viewed at < <http://home.maine.rr.com/cwhr> >. We will accept all birds except crows, jays and ravens.

\$\$ Grant Opportunities \$\$

Funder	Region	Deadline(s)	Phone	Web Site (W) / E-mail (E)
Captain Planet (Environ. Education)	National	September 15 December 31		www.captainplanetfdn.org
Casco Bay Estuary Project — Habitat Protection Fund	Casco Bay Watershed	On-going	(207) 780-4820	www.cascobay.usm.maine.edu/habitat.html
EPA Environmental Education Grants	National	January		www.epa.gov/teachers/grants.htm
Fish America Foundation / General Conservation Grants	National	On-going	(703) 519-1872	www.fishamerica.org
Haymarket People's Fund	CT, ME, NH, RI and VT.	October 1 February 1	(617) 522-7676	www.haymarket.org
Maine Environmental Educators Association	Maine	On-going		www.meeassociation.org
Oracle	National	December 1		www.oracle.com/corporate/giving/community/index.html
Sudbury Foundation	Gulf of Maine	January 1	(978) 443-0849	www.sudburyfoundatiion.org
Timberland Company	National-priority where Timberland employees live/work	September January		www.timberland.com/timberlandserve/timberlandserve_index.jsp
Town Creek Foundation	National	September 15 January 15		www.towncreekfdn.org
U.S. Fish & Wildlife Service/ Coastal Grants	National	On-going-check with area coastal program		www.fws.gov/cep/coastweb.html
Wildlife Forever	National	January 1		www.wildlifeforever.org/grants.html
William P. Wharton Trust	New England	October 1 April 1	(617) 248-5000	



A new publication "The River Advocate's Fundraising Guide" is available on the "River Network" website. Chapters of the publication with topics ranging from Board Fundraising to Special Appeals are available for downloading. To view or download: visit < www.rivernetwork.org/fundraisingguide/ >.

RECEIVE NEWSLETTER BY E-MAIL!

We are moving toward sending the newsletter through email. This will help us to save on printing and delivery costs and paper. We will not sell your e-mail address to other entities. If you have email, please send us your address. For those who do not have email, we will continue to send you the newsletter through the mail.



Maine Stream Team Program
c/o Maine DEP
312 Canco Road
Portland, Maine 04103

Return Service Requested

How Do I Join the MSTP?

It's easy! First, choose a stream or stream segment. Next, either obtain a "stream team registration form" by contacting us or filling out the online registration form. After registering, you will receive some helpful information and begin to receive our periodic newsletter to help you stay up-to-date.

Membership to the program is free to any interested citizen, family, or organization. Once you have a "Team" and a stream, you're set! You can determine your stream's values and problems and you can plan projects based on your assessments. You establish the course of events in protecting your stream. The Maine Stream Team Program can help you with ideas, advice, and informational materials.

Contact The Maine Stream Team Program (MSTP):

Mail: Maine Stream Team Program, c/o Maine DEP, 312 Canco Road, Portland, ME 04103

E-mail: mstp@maine.gov

Internet: www.state.me.us/dep/blwq



Please note: our e-mail address has changed

Phone: (888)769-1036 (toll free – ask for the Maine Stream Team Program); (207)822-6317 [Jeff Varrichione, Portland, coordinator]; (207) 287-7729 [Mary-Ellen Dennis, Augusta]; (207)941-4566 [Mark Whiting, Bangor]

Deadline for submitting calendar items, articles, or photos for the next newsletter is [January 1, 2005](#).

